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Docket: 7214.08

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Charles N. Serhan  
Application No.: 10/004,155  
Filing Date: October 19, 2001  
Title: Regulation of Phospholipase D Activity

Examiner:  
Group Art Unit:

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INFORMATION DISCLOSURE STATEMENT  
UNDER 37 CFR 1.97(b)

Commissioner for Patents  
Washington, D.C. 20231

I hereby certify that this document is being sent via First Class U. S. mail addressed to: Commissioner for Patents, Washington, D.C. 20231 on this 22 day of JANUARY, 2002.

  
(Signature)

Dear Sir:

Pursuant to 37 CFR 1.97(b), the references listed on the attached Form PTO-1449 (1 sheet, submitted in duplicate) are brought to the attention of the Examiner for consideration in connection with the examination of the above-identified patent application. This IDS is being filed before the mailing of a first office action. In accordance with 37 CFR 1.97(b), no statement or fee is required.

Copies of the references cited are not enclosed, as allowed under 37 CFR 1.98(d). Each item on the enclosed Form PTO-1449 was cited to, or cited by, the Office in one or more of the following prior related cases, to which priority to an earlier effective filing date is claimed under 35 U.S.C. § 120, in the present application.

Serial No. 09/525,157, filed March 14, 2000

Respectfully submitted,

DORSEY & WHITNEY LLP

Date:

JANUARY 22, 2002

By:



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Form PTO-1449  
(Rev. 8-83)U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICEATTY. DOCKET NO:  
7214.08APPLICATION NO:  
10/004,155

## INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

APPLICANT(S):  
Charles N. SerhanFILING DATE:  
October 19, 2001

GROUP &amp; UNIT

1614

## U.S. PATENT DOCUMENTS

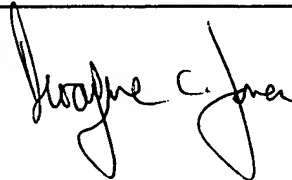
EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

## FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
					YES	NO

## OTHER DOCUMENTS (including Author, Title, Date, Pertinent Pages, Etc.)

AA	Weissmann, G., Smolen, J. E., and Korchak, H. M. (1980) Release of inflammatory mediators from stimulated neutrophils. <i>N. Engl. J. Med.</i> 303, 27-34
AB	Serhan, C. N., Haeggstrom, J. Z., and Leslie, C. C. (1996) Lipid mediator networks in cell signaling: update and impact of cytokines. <i>FASEB J.</i> 10, 1147-1158
AC	Weiss, S. J. (1989) Tissue destruction by neutrophils. <i>N. Engl. J. Med.</i> 320, 365-376
AD	Serhan, C. N. (1994) Lipoxin biosynthesis and its impact in inflammatory and vascular events. <i>Biochim. Biophys. Acta</i> 1212, 1-25
AE	Borgeat, P., and Naccache, P. H. (1990) Biosynthesis and biological activity of leukotriene B <sub>4</sub> . <i>Clin. Biochem.</i> 23, 459-468
AF	Yokomizo, T., Izumi, T., Chang, K., Takuwa, T., and Shimizu, T. (1997) A G-protein-coupled receptor for leukotriene B <sub>4</sub> that mediates chemotaxis. <i>Nature</i> 387, 620-624
AG	Fiore, S., Romano, M., Reardon, E. M., and Serhan, C. N. (1993) Induction of functional lipoxin A <sub>4</sub> receptors in HL-60 cells. <i>Blood</i> 81, 3395-3403
AH	Isakson, P., Seibert, K., Masferrer, J., Salvemini, D., Lee, L., and Needleman, P. (1995) Discovery of a better aspirin. <i>Advances in Prostaglandin, Thromboxane &amp; Leukotriene Research</i> 23, 49-54
AI	Chiang, N., Takano, T., Clish, C. B., Petasis, N. A., Tai, H.-H., and Serhan, C. N. (1998) Aspirin-triggered 15-epi-lipoxin A <sub>4</sub> (ATL) generation by human leukocytes and murine peritonitis exudates: development of a specific 15-epi-LXA <sub>4</sub> ELISA. <i>J. Pharmacol. Exper. Ther.</i> 287, 779-790
AJ	Serhan, C. N., Maddox, J. F., Petasis, N. A., Akritopoulou-Zanze, I., Papayianni, A., Brady, H. R., Colgan, S. P., and Madara, J. L. (1995) Design of lipoxin A <sub>4</sub> stable analogs that block transmigration and adhesion of human neutrophils. <i>Biochemistry</i> 34, 14609-14615


 June 21, 2002

AK	Takano, T., Fiore, S., Maddox, J. F., Brady, H. R., Petasis, N. A., and Serhan, C. N. (1997) Aspirin-triggered 15-epi-lipoxin A <sub>4</sub> (LXA <sub>4</sub> ) and LXA <sub>4</sub> Stable analogues are potent inhibitors of acute inflammation: Evidence for anti-inflammatory receptors. <i>J. Exp. Med.</i> 185, 1695-1704
AL	Owman, C., Garzino-Demo, A., Cocchi, F., Popovic, M., Sabirsh, A., and Gallo, R. (1998) The leukotriene B <sub>4</sub> receptor functions as a novel type of coreceptor mediating entry of primary HIV-1 isolates into CD4-positive cells. <i>Proc. Natl. Acad. Sci.</i> 95, 9530-9534
AM	Marcus, A. J. (1995) Aspirin as prophylaxis against colorectal cancer. <i>N. Engl. J. Med.</i> 333, 656-658
AN	Vainio, H., and Morgan, G. (1997) Aspirin for the second hundred years: new uses for an old drug. <i>Pharmacol Toxicol</i> 81, 151-152
AO	Herschman, H. R. (1998) Recent progress in the cellular and molecular biology of prostaglandin synthesis. <i>Trends in Cardiovasc. Med.</i> 8, 145-150
AP	Takano, T., Clish, C. B., Gronert, K., Petasis, N., and Serhan, C. N. (1998) Neutrophil-mediated changes in vascular permeability are inhibited by topical application of aspirin-triggered 15-epi-lipoxin A <sub>4</sub> and novel lipoxin B <sub>4</sub> stable analogues. <i>J. Clin. Invest.</i> 101, 819-826
AQ	Billah, M. M., Eckel, S., Mullmann, T. J., Egan, R. W., and Siegel, M. I. (1989) Phosphatidylcholine hydrolysis by phospholipase D determines phosphatidate and diglyceride levels in chemotactic peptide-stimulated human neutrophils. Involvement of phosphatidate phosphohydrolase in signal transduction. <i>J. Biol. Chem.</i> 264, 17069-17077
AR	Wakelam, M. J. O., Martin, A., Hodgkin, M. N., Brown, F., Pettit, T. R., Cross, M. J., De Takats, P. G., and Reynolds, J. L. (1997) Role and regulation of phospholipase D activity in normal and cancer cells. <i>Advances in Enzyme Regulation</i> 37, 29-34
AS	Olson, S. C., and Lambeth, J. D. (1996) Biochemistry and cell biology of phospholipase D in human neutrophils. <i>Chem. Phys. Lipids</i> 80, 3-19
AT	Steed, P. M., Clark, K. L., Boyar, W. C., and Lasala, D. J. (1998) Characterization of human PLD2 and the analysis of PLD isoform splice variants. <i>FASEB J.</i> 12, 1309-1317
AU	Martin, A., Saqib, K. M., Hodgkin, M. N., Brown, F. D., Pettit, T. R., Armstrong, S., and Wakelam, M. J. O. (1997) Role and regulation of phospholipase D signalling. <i>Biochem. Soc. Trans.</i> 25, 1157-1160
AV	Levy, B. D., Petasis, N. A., and Serhan, C. N. (1997) Polyisoprenyl phosphates in intracellular signalling. <i>Nature</i> 389, 985-989
AW	Agwu, D. E., McPhail, L. C., Sozzani, S., Bass, D. A., and McCall, C. E. (1991) Phosphatidic acid as a second messenger in human polymorphonuclear leukocytes. Effects on activation of NADPH oxidase. <i>J. Clin. Invest.</i> 88, 531-539
AX	Pettit, T. R., Martin, A., Horton, T., Liossis, C., Lord, J. M., and Wakelam, M. J. O. (1997) Diacylglycerol and phosphatidate generated by phospholipases C and D, respectively, have distinct fatty acid compositions and functions. <i>J. Biol. Chem.</i> 272, 17354-17359
AY	Gomez-Cambronero, J. (1995) Immunoprecipitation of a phospholipase D activity with antiphosphotyrosine antibodies. <i>J. Interferon Cytokine Res.</i> 15, 877-885

Walter C. Jones June 21, 2002

AZ	Abousalham, A., Riviere, M., Teissere, M., and Verger, R. (1993) Improved purification and biochemical characterization of phospholipase D from cabbage. <i>Biochim. Biophys. Acta</i> 1158, 1-7
BA	Zhou, H.-L., Chabot-Fletcher, M., Foley, J. J., Sarau, H. M., Tzimas, M. N., Winkler, J. D., and Torphy, T. J. (1993) Association between leukotriene B <sub>4</sub> -induced phospholipase D activation and degranulation of human neutrophils. <i>Biochem. Pharmacol.</i> 46, 139-148
BB	Shechter, I., Fogelman, A. M., and Popjak, G. (1980) A deficiency of mixed function oxidase activities in the cholesterol biosynthetic pathway of human granulocytes. <i>J. Lipid Res.</i> 21, 277-283
BC	Rabinowitz, J. L., Baker, D. G., Villanueva, T. G., Asanza, A. P., and Capuzzi, D. M. (1992) Liver lipid profiles of adults taking therapeutic doses of aspirin. <i>Lipids</i> 27, 311-314
BD	Claria, J., and Serhan, C. N. (1995) Aspirin triggers previously undescribed bioactive eicosanoids by human endothelial cell-leukocyte interactions. <i>Proc. Natl. Acad. Sci.</i> 92, 9475-9479
BE	Serhan, C. N. (1997) Lipoxins and Novel Aspirin-Triggered 15-epi-Lipoxins: A Jungle of Cell-Cell Interactions or a Therapeutic Opportunity? <i>Prostaglandins</i> 53, 107-137
BF	Exton, J. H. (1997) New developments in phospholipase D. <i>J. Biol. Chem.</i> 272, 15579-15582
BG	Fensome, A., Whatmore, J., Morgan, C., Jones, D., and Cockcroft, S. (1998) ADP-ribosylation factor and Rho proteins mediate fMLP-dependent activation of phospholipase D in human neutrophils. <i>J. Biol. Chem.</i> 273, 13157-13164
BH	Jarstfer, M. B., Blagg, B. S. J., Rogers, D. H., and Poulter, C. D. (1996) Biosynthesis of squalene. Evidence for a tertiary cyclopropylcarbinyl cationic intermediate in the rearrangement of presqualene diphosphate to squalene. <i>J. Amer. Chem. Soc.</i> 118, 13089-13090
BI	Bach, T. J. (1995) Some new aspects of isoprenoid biosynthesis in plants --a review. <i>Lipids</i> 30, 191-202
Examiner	<p>Date Considered: <u>May 2, 2002</u> <u>June 21, 2002</u></p> <p>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and considered. Include copy of this form with next communication to applicant.</p> <p>#866268v1 &lt;image&gt; -101536-39 PTO 1449.wpd</p>

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Form <del>PTO</del> 1449 U.S. DEPARTMENT OF COMMERCE (Rev. 12-3-85) PATENT AND TRADEMARK OFFICE  <div style="border: 1px solid black; border-radius: 50%; padding: 5px; display: inline-block; transform: rotate(-45deg);">             FEB 08 2002 JC24         </div> <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (use several sheets if necessary)	ATTY DOCKET NO. 7214.07	SERIAL NO. 10/004,155
APPLICANT Charles N. Serhan		
FILING DATE October 19, 2001		GROUP ART UNIT 1619

**U.S. PATENT DOCUMENTS**

Examiner Initial	Document Number	Date	Inventor Name	Class	Sub-class	Filing Date (if appropriate)
[Signature]	5,441,951	8/15/1995	Serhan	514	213	
	5,648,512	7/15/1997	Serhan	560	9	

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**FOREIGN PATENT DOCUMENTS**

Examiner Initial	Document Number	Date	Country	Class	Sub-class	Translation
[Signature]	WO 94/29262	12/22/1994	PCT			No
	WO 95/01179	1/12/1995	PCT			No
	WO 00/54767	9/21/2000	PCT			No
						No
						No

**OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)**

Examiner Initial	Document Description
[Signature]	<del>PCT/US00/06669 International Search Report</del>
	Serhan et al., "Aspirin-Triggered 15-EPI-Lipoxin A <sub>4</sub> and Novel Lipoxin B <sub>4</sub> Stable Analogs Inhibit Neutrophil-Mediated Changes in Vascular Permeability", <i>Advances in Experimental Medicine and Biology</i> , Vol. 469, 1999, pgs. 287-293
	Gewirtz et al., "Pathogen-Induced Chemokine Secretion from Model Intestinal Epithelium is Inhibited by Lipoxin A <sub>4</sub> Analogs", <i>Journal of Clinical Investigation</i> , Vol. 101, No. 9, May 1998, pgs. 1860-1869
	Hansson et al., "Activation of Protein Kinase C By Lipoxin A and Other Eicosanoids. Intracellular Action of Oxygenation Products of Arachidonic Acid", <i>Biochemical and Biophysical Research Communications</i> , Vol. 134, No. 3, 1986, pgs. 1215-1222

<b>EXAMINER</b> [Signature]	<b>DATE CONSIDERED</b> June 21, 2002
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